CLAIMS

What is claimed:

1. A riser reactor for fluidized catalytic conversion process which consists of a prelift zone, a first reaction zone, a second reaction zone with enlarged diameter, an outlet zone with reduced diameter along coaxial direction from bottom to top of the riser reactor, and the end of the outlet zone connects to a horizontal tube.

2. The reactor of claim 1 wherein the total height of said prelift zone, said first reaction zone, said second reaction zone and said outlet zone is generally from about 10 meters to about 60 meters.

3. The reactor of claim 1 wherein the diameter of said prelift zone is from about 0.02 meter to about 5 meters and its height is generally from about 5% to about 10% of the height of the riser.

4. The reactor of claim 1 wherein the diameter ratio of said first reaction to said prelift zone is generally from about 1:1 to about 2:1 and the height of said first reaction zone is generally from about 10% to about 30% of the height of the riser.

5. The reactor of claim 1 wherein the diameter ratio of said second reaction zone to said first reaction zone is generally from about 1.5:1 to about 5:1 and the height of said first reaction zone is generally from about 30% to about 60% of the height of the riser.

6. The reactor of claim 1 wherein the diameter ratio of said outlet zone to said first reaction zone is generally from about 0.8:1 to about 1.5:1 and the height of

said first reaction zone is generally from about 0% to about 20% of the height of the riser.

7. The reactor of claim 1 wherein the conjunct section between said first reaction zone and said second reaction zone is a circular truncated cone whose vertical section isotrapezia vertex angle α is generally about 30°~80°.

8. The reactor of claim 1 wherein the conjunct section between said first reaction zone and said outlet zone is a circular truncated cone whose vertical section isotrapezia base angle β is generally about 45°~85°.